REMARKS

Status of the Claims

Claims 1–9 and 11–21 are pending. Claim 1 is amended. Support for the amendments may be found throughout the application as originally filed.[1] Applicants respectfully request entry of this amendment and submit that no new matter is added.

Claim Rejections—35 U.S.C. § 103(a)

Claims 1 and 3–9 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Nagaoka, *et al.* (2002) Biotechnology Letters 24: 1857–1862 ("Nagaoka 1"), and as evidenced by Nagaoka, *et al.* (2003) Cell Structure and Function 28(4): 1P-53 ("Nagaoka 2"). Applicants respectfully traverse.

As a preliminary matter, Applicants have amended claim 1 recite a method of growing pluripotent stem cells which exhibit a normal karyotype. Applicants submit that neither Nagaoka 1 or Nagaoka 2 teach or suggest such a method. Accordingly, Applicant respectfully request withdrawal of the rejection.

Nagaoka 1 and Nagaoka 2 do not teach pluripotent stem cells.

In its previous response, Applicants argued that neither Nagaoka 1 nor Nagaoka 2 teach or suggest pluripotent stem cells.[2] In the Office Action, the Examiner cites Nicolas[3] to support the proposition that F9 teratocarcinoma cells are pluripotent stem cells. In particular, the Examiner alleges that Nicolas discloses that F9 teratocarcinoma cells have a normal karyotype and can form all three germ layers.[4]

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[1] *See, e.g.*, Specification, ¶¶ 5, 7, 72, 111, Example 3, Figures 3A and 3. These and other specification citations refer to US 2007/0155013—the publication of the instant application.

[2] *See*, Amendment and Reply filed July 20, 2009, page 6.

[3] Nicolas, *et al.* (1975) Annales de Microbiologie 126(1): 3–22 ("Nicolas").

[4] *See* Office Action, page 6 (citing Nicolas).

Nicolas Does Not Teach F9 Teratocarcinoma Cells.

Applicants submit herewith an English translation of Nicolas. A reading of this document makes clear that Nicolas actually discusses the characterization of a different teratocarcinoma cell, PCC3 cells, not F9 teratocarcinoma cells.[5] Indeed, it is the PCC3 teratocarcinoma cells, not F9 teratocarcinoma cells, that Nicolas states can be differentiated into all three germ layers[6] and exhibit a normal karyotype .[7] Therefore, Nicolas does not teach or suggest F9 teratocarcinoma cells, let alone that F9 teratocarcinoma cells are pluripotent stem cells.

F9 Teratocarcinoma Are Not Pluripotent Stem Cells.

The specification defines "pluripotent stem cells" as "cells capable of prolonged or virtually indefinite proliferation in vitro while retaining their undifferentiated state, exhibiting normal karyotype (chromosomes) and having the capacity to differentiate into all three germ layers (ectoderm, mesoderm and endoderm) under the appropriate conditions."[8]

F9 teratocarcinoma cells are derived from *Mus musculus*.[9] This species of mouse has 40 chromosomes.[10] F9 teratocarcinoma cells, however, are pseudodiploid, exhibiting 39 chromosomes, *i.e.*, not the normal karyotype of 40 chromosomes.[11] Therefore, F9 teratocarcinoma cells are not pluripotent stem cells at least because they do not exhibit a normal karyotype.[12]

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[5] *See* Nicolas [English translation], page 2 ("We report several of the properties of a PTC cell line called PCC3...").

[6] *See id.*, Abstract.

[7] *See id.*

[8] Specification, ¶ 72 (emphasis added).

[9] *See also* ATCC Information (disclosing that F9 cells are derived from *Mus musculus*).

[10] *See* Painter (1928) Genetics 13: 180–189, 184 ("Painter") (disclosing that *Mus musculus* mice have 40 chromosomes).

[11] *See* Alonso, *et al.* (1991) Int. J. Dev. Biol. 35: 389–397, page 390 *compare* to Painter, page 184.

[12] *See, e.g.*, Avner, *et al.* (1978) Immunogenetics 7: 103–115, 104 (discloses that F9 teratocarcinoma cells are aneuploid).

Thus, neither Nagaoka 1 nor Nagaoka 2 teaches or suggests growing pluripotent stem cells which exhibit a normal karyotype at least because F9 teratocarcinoma cells do not exhibit a normal karyotype. Thus, neither reference, alone or in combination, renders the claims obvious.

In view of the foregoing, Applicants respectfully request withdrawal of this rejection.

Claim Rejections—35 U.S.C. § 102(b)

Claims 1 and 3–9 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Nagaoka 1 and as evidenced by Nagaoka 2. Applicants respectfully traverse.

As discussed above, neither Nagaoka 1 nor Nagaoka 2 teach or suggest growing pluripotent stem cells which exhibit a normal karyotype. At least for this reason, the references do not anticipate any of the claims.

In view of the foregoing, Applicants respectfully request withdrawal of this rejection.

Claim Rejections—35 U.S.C. § 103(a)

Claims 19 and 20 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Nagaoka 1 and as evidenced by Nagaoka 2. Applicants respectfully traverse.

As discussed above, neither Nagaoka 1 nor Nagaoka 2 teach or suggest growing pluripotent stem cells which exhibit a normal karyotype. At least for this reason, the references do not render any of the claims obvious.

In view of the foregoing, Applicants respectfully request withdrawal of this rejection.

CONCLUSION

In view of the foregoing, Applicants respectfully request an indication of allowance of all claims. If the Examiner has any questions relating to this response, or the application in general, he is respectfully requested to contact the undersigned so that prosecution of this application may be expedited.

Respectfully submitted,

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